STATE OF SOUTH CAROLINA

In Re:

Annual Review of Base Rates
For Fuel Costs for
Duke Energy Carolinas, LLC

BEFORE THE
PUBLIC SERVICE COMMISSION
OF SOUTH CAROLINA

COVER SHEET

DOCKET
NUMBER: 2008-3-E

(Please type or print)

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DOCKETING INFORMATION (Check all that apply)

☐ Emergency Relief demanded in petition ☐ Request for item to be placed on Commission's Agenda expeditiously

☒ Other: Testimony of John J. Roebel

INDUSTRY (Check one)	NATURE OF ACTION (Check all that apply)		
☒ Electric	☐ Affidavit	☐ Letter	☐ Request
☐ Electric/Gas	☐ Agreement	☐ Memorandum	☐ Request for Certificatio
☐ Electric/Telecommunications	☐ Answer	☐ Motion	☐ Request for Investigatior
☐ Electric/Water	☐ Appellate Review	☐ Objection	☐ Resale Agreement
☐ Electric/Water/Telecom.	☐ Application	☐ Petition	☐ Resale Amendment
☐ Electric/Water/Sewer	☐ Brief	☐ Petition for Reconsideration	☐ Reservation Letter
☐ Gas	☐ Certificate	☐ Petition for Rulemaking	☐ Response
☐ Railroad	☐ Comments	☐ Petition for Rule to Show Cause	☐ Response to Discovery
☐ Sewer	☐ Complaint	☐ Petition to Intervene	☐ Return to Petition
☐ Telecommunications	☐ Consent Order	☐ Petition to Intervene Out of Time	☐ Stipulation
☐ Transportation	☐ Discovery	☒ Prefiled Testimony	☐ Subpoena
☐ Water	☐ Exhibit	☐ Promotion	☐ Tariff
☐ Water/Sewer	☐ Expedited Consideration	☐ Proposed Order	☐ Other:
☐ Administrative Matter	☐ Interconnection Agreement	☐ Protest	
☐ Other:	☐ Interconnection Amendment	☐ Publisher's Affidavit	
	☐ Late-Filed Exhibit	☐ Report	

BEFORE THE

PUBLIC SERVICE COMMISSION OF

SOUTH CAROLINA

DOCKET NO. 2008-3-E

In the Matter of	)	
Annual Review of Base Rates	)	**TESTIMONY OF**
for Fuel Costs for	)	**JOHN J. ROEBEL**
Duke Energy Carolinas, LLC	)	
	)	

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND POSITION WITH DUKE ENERGY CAROLINAS.

A. My name is John J. Roebel and my business address is 139 E. Fourth Street, Cincinnati, Ohio, 45202. I am employed by Duke Energy Business Services, LLC as Senior Vice President, Engineering and Technical Services and am an officer of Duke Energy Carolinas, LLC ("Duke Energy Carolinas" or "the Company").

Q. WHAT ARE YOUR DUTIES AND RESPONSIBILITIES AS SENIOR VICE PRESIDENT, ENGINEERING AND TECHNICAL SERVICES?

A. I supervise and am responsible for the professional group that provides the technical support to the electric generating plants of the subsidiaries of Duke Energy Corporation ("Duke Energy"), including the generating plants of Duke Energy Carolinas and other generating subsidiaries of Duke Energy. This technical support includes services such as engineering, new technology evaluation, environmental health and safety, project management, environmental equipment and combustion by-product management, maintenance support, and equipment support, to enable Duke Energy Carolinas to operate a safe, reliable and efficient generation portfolio. I am also responsible for the group that provides engineering services for the electric transmission and distribution systems of Duke Energy utility subsidiaries.

Q. PLEASE BRIEFLY DESCRIBE YOUR EDUCATIONAL AND PROFESSIONAL BACKGROUND.

A. I received a bachelor's degree in Mechanical Engineering from the University of Cincinnati Engineering College in 1980. Since that time I have taken graduate courses, primarily in business administration, from both the University of Cincinnati and from Xavier University.

I worked for The Cincinnati Gas & Electric Company ("CG&E") as a co-op student in the engineering area during undergraduate school, and became a full-time employee after graduation in 1980. Since joining CG&E, and later Cinergy Services, Inc. after the merger of PSI Energy, Inc. ("PSI") and CG&E, I have held a number of positions of increasing responsibility in the engineering and construction management areas, including mechanical project engineer for a new coal fired unit and project manager on the conversion of CG&E's Zimmer station from nuclear to coal, and I was responsible for the design and construction of CG&E's Woodsdale Generating Station. I was promoted to my present position in April, 2006.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. The purpose of my testimony is to discuss the performance of Duke Energy Carolinas' fossil-fueled and hydroelectric generating facilities during the period of July 1, 2007 through June 30, 2008. I discuss the impact of the severe drought conditions experienced in the Carolinas on the fossil and hydroelectric generation fleet and the status of construction and operation of environmental controls equipment at coal-fired stations. In addition, I address certain variable environmental costs that are included in the proposed fuel factor.

Q. MR. ROEBEL, PLEASE DESCRIBE DUKE ENERGY CAROLINAS' FOSSIL AND HYDROELECTRIC GENERATION PORTFOLIO.

A. Duke Energy Carolinas' Fossil/Hydro generation portfolio consists of 14,206 MWs of generating capacity, made up as follows:

Coal-fired generation -	7,722 MWs
Hydroelectric -	3,218 MWs
Combustion Turbines -	3,266 MWs

(Combustion turbines can operate on natural gas or fuel oil)

This portfolio includes a diverse mix of units that, along with additional nuclear capacity, allow the Company to meet the continuously changing customer load pattern in a logical and cost-effective manner. The cost and operational characteristics of each unit generally determine the type of customer load situation that the unit would be called upon to support. Base load units typically have lower operating costs but higher initial capital costs to install than other generating units. These larger units are called upon first to support customer load requirements and thus run almost continuously. In addition to Duke Energy Carolinas' seven nuclear units, the seven largest coal-fired units often operate under these base load conditions. Intermediate units are dispatched next to support customer demand, ramping up and down throughout each day to match load requirements as they change. These units take time to ramp up from a cold shut down and are best used to respond to more predictable system load patterns. This intermediate fleet is made up of thirteen coal units. During periods of highest customer demand, many of these units will also operate at maximum capacity and almost continuously along with the base load units discussed above.

Peaking units typically have higher operating costs but relatively lower initial capital costs to install than base load or intermediate units. They have the ability to be started quickly in response to a sharp increase in customer demand, without having to operate continuously. These peaking units are called upon when customer demand is high and thus typically have lower capacity factors than the base load or intermediate units. The remaining ten small coal units as well as the entire hydroelectric fleet and entire gas/oil-fired combustion turbine fleet make up this peaking category. The Company's hydroelectric and combustion turbine units are especially good for supporting abrupt changes in load demand as their generation output can usually ramp up or down very quickly.

Witness Jones will discuss the nuclear fleet in his testimony.

Q. PLEASE EXPLAIN THE BENEFITS OF THE COMPANY'S DIVERSE MIX OF GENERATING UNITS.

A. Operating a generating fleet with a great amount of diversity of fuel and operating characteristics, combined with purchased power and demand-side options, provides the Company with opportunity to meet all load demand scenarios in the most cost effective manner. Based on the load demand that the Company is called upon to serve at any given point in time, operators selects the combination of generating unit and purchased power options that will produce electricity in the most economical manner with consideration for issues such as reliability of service, environmental compliance and safety. This cost optimization approach to system operations allows for the minimization of the total cost of providing electric service to customers.

Q. HOW DOES THE COMPANY DECIDE WHEN TO OPERATE EACH TYPE OF GENERATING UNIT?

A. Each day, Duke Energy Carolinas selects the combination of Company-owned generating units and available power purchases that will most reliably meet customer needs in a least cost manner. Available units with the lowest operating costs (fuel, emission allowances and variable operating and maintenance costs, etc.) are dispatched first, with higher cost units added as load increases. Intraday adjustments are made to reflect changing conditions and purchase opportunities.

Q. PLEASE DESCRIBE HOW PURCHASES OF POWER FROM OTHER SUPPLIERS FIT INTO THIS PROCESS.

A. The Company monitors the energy market, evaluating long-term, seasonal, monthly, weekly, daily and hourly purchase opportunities. In making these daily decisions on which resources should be used to meet customer needs, the Company may purchase energy from other suppliers, whether under existing long-term capacity agreements or short-term spot market purchases, to ensure it selects the most cost-effective and reliable solution.

Q. WHAT CHANGES TO THE FOSSIL/HYDRO GENERATION PORTFOLIO CAPACITY HAVE BEEN MADE DURING THIS TEST PERIOD?

A. As a result of the completion of turbine runner upgrades on Units 3 and 4 at the Jocassee Hydroelectric Station, the hydroelectric fleet capacity has increased by 50 MW (25 MW for each of the two upgraded Jocassee units).

As a result of the replacement of the intermediate pressure turbine rotor on Unit 4 at the Marshall Steam Station, the coal fleet capacity has increased by 2 MW.

As a result of the installation of the flue gas desulfurization ("FGD" or "Scrubber") equipment at the Marshall Steam Station for sulfur dioxide ("SO_2") emissions reduction, the coal fleet capacity has decreased by 34 MW (5 MW each for Units 1 and 2, 12 MW each for Units 3 and 4). These 34 MWs must now serve the auxiliary load requirement for this pollution control equipment.

Q. WHAT ARE THE COMPANY'S OBJECTIVES IN THE OPERATION OF ITS FOSSIL AND HYDRO GENERATING UNITS?

A. The primary objective of Duke Energy Carolinas' Fossil/Hydro generation personnel is to safely provide reliable and cost effective electricity to our Carolinas customers in compliance with all applicable environmental regulations. This objective is achieved though our focus in a number of key areas. Operations personnel and other station employees are well trained and execute their responsibilities to the highest standards, in accordance with procedures, guidelines and a standard operating model. We maintain station equipment and systems in a cost-effective manner to ensure reliability. We take action in a timely manner to implement work plans and projects that enhance the performance of systems, equipment and personnel, consistent with providing low cost power options for our customers. Equipment inspection and maintenance outages are scheduled when appropriate; are well-planned and executed with quality, with the primary purpose of preparing the plant for reliable operation until the next planned outage.

Q. WHAT HAS BEEN THE HEAT RATE OF DUKE ENERGY CAROLINAS' COAL UNITS DURING THE TEST PERIOD?

A. Over the test period, the heat rate for the coal fleet was 9,703 BTU/kWh. Heat rate is a measure of the amount of thermal energy needed to generate a given amount of electric energy and is expressed as BTUs per kilowatt-hour (BTU/kWh). A low heat rate indicates an efficient fleet that uses less heat energy from fuel to generate electrical energy. Duke Energy Carolinas has consistently been an industry leader in achieving low heat rates. In the November/December 2007 issue of *Electric Light and Power* magazine, Duke Energy Carolinas' Belews Creek Steam Station and Marshall Steam Station ranked as the country's fifth and seventh most energy efficient coal-fired generators, respectively. In this publication, the Belews Creek Steam Station heat rate was calculated at 9,023 BTU/kWh, and the Marshall Steam Station heat rate was calculated at 9,143 BTU/kWh. Over the test period, the Belews Creek and Marshall units provided the majority (60.1%) of coal-fired generation for Duke Energy Carolinas.

Q. PLEASE DISCUSS THE OPERATIONAL RESULTS FOR DUKE ENERGY CAROLINAS' FOSSIL GENERATING UNITS DURING THE TEST PERIOD.

A. Duke Energy Carolinas' coal-fired generating units operated efficiently and reliably during the test period. Two key measures are used to evaluate the operational performance of generating facilities: equivalent availability factor and capacity factor. Equivalent availability factor refers to the percent of a given time period a facility was available to operate at full power if needed. Equivalent availability is not affected by the manner in which the unit is dispatched or by the system demands; however, it is impacted by planned and forced outage time. Capacity factor measures the generation a facility actually produces against the amount of generation that theoretically could be produced in a given time period, based upon its maximum dependable capacity. Capacity factor is affected by the dispatch of the unit to serve customer needs. Given the different operating characteristics it is appropriate to evaluate these factors based on the operational categories discussed above -- base load, intermediate and peaking.

Duke Energy Carolinas' seven base load coal units achieved results of 80.8% equivalent availability factor and 75.5% capacity factor over the test period. During the peak summer season within this test period, these base load units achieved excellent results of 88.6% equivalent availability factor and 81.0% capacity factor. The Company's thirteen intermediate coal units achieved results of 85.4% equivalent availability factor and 66.8% capacity factor over the test period and performed similarly during the summer peak months at 86.6% equivalent availability and 66.3% capacity. Duke Energy Carolinas' ten peaking coal units achieved results of 81.4% equivalent availability factor and 44.8% capacity factor for the test period. These peaking units performed similarly during the summer peak months at 44.9% capacity but with a lower equivalent availability factor of 76.8%, mostly as a result of cooling water thermal limitations. Overall, the coal units achieved a fleet-wide availability factor of 82.14% for the test period and 87.0% during the summer peak months. These results are consistent with the most recently published NERC average equivalent availability for coal plants of 85.1%

and compare favorably for the summer peak months. This NERC availability average covers the period 2002-2006 and represents the performance of over 800 North American coal-fired units within this time period.

The Company's combustion turbines were available for use as needed in this test period, most notably during August and September of 2007 and June of 2008 when extreme temperatures created high load demand. A key measure of success for the combustion turbine fleet is starting reliability. During the test period, the large combustion turbines at the Lincoln, Mill Creek and Rockingham plants had 1,272 successful starts out of 1,307 requests for a 97.3% starting reliability result.

These results are indicative of solid performance and good operation and management of Duke Energy Carolinas' fossil fleet during the test period, particularly in light of both (1) the number of scheduled outage days required for environmental controls installations, and (2) the impacts of the severe drought conditions which led to cooling water thermal limitations experienced during the test period. I will discuss these impacts below.

Q. PLEASE DISCUSS THE PERFORMANCE OF THE COMPANY'S HYDROELECTRIC FACILITIES DURING THE TEST PERIOD.

A. Outside the impacts of drought-related restrictions discussed below, the hydroelectric fleet had outstanding operational performance during the test period with an overall availability factor of 94.5%. This availability factor measurement refers to the percentage of a given time period that each hydroelectric unit was available to operate if needed. This availability measure is not affected by the manner in which the unit is dispatched, but is impacted by the amount of unit outage time.

Q. PLEASE EXPLAIN THE DROUGHT CONDITIONS EXPERIENCED IN THE COMPANY'S SERVICE TERRITORY DURING THE TEST PERIOD.

A. During 2007, Duke Energy Carolinas' service territory received only 27.9 inches of rainfall, which is more than a foot and a half below the long-term annual average of 46.5 inches, and stream flows dropped to record lows. To date, rainfall in 2008 has been about eight inches below normal. According to data published in January, 2008 by the U.S. Department of Commerce National Oceanic and Atmospheric Administration, 2007 was the second driest year for the Southeast Region in 113 years. According to that same data, 2007 was the driest year for North Carolina in 113 years and the fifth driest year for South Carolina. The U.S. Drought Monitor maps have, for months, illustrated that Duke Energy Carolinas' service territory is located in the most severely impacted region in the Carolinas. Those maps have labeled most of Duke Energy Carolinas' service territory as experiencing "extreme" or "exceptional" drought conditions, the most severe categories, for the majority of the test period. Furthermore, of the electric utilities located in the Carolinas, the Company is in a unique position in that it has the greatest percentage of its service territory located within the footprint of the extreme and exceptional drought areas.

Q. PLEASE DISCUSS THE IMPACT OF THE DROUGHT CONDITIONS ON THE COMPANY'S HYDROELECTRIC AND FOSSIL GENERATING UNITS DURING THE TEST PERIOD.

A. The severe rain shortfall and low stream flow conditions experienced during the test period impacted the availability of hydroelectric units and resulted in cooling water thermal limitations at coal-fired facilities. As a result of these exceptional conditions, the Company modified its operations to account for the adverse impact of the prolonged drought. Duke Energy Carolinas began reducing the use of its hydroelectric generation units in April, 2007, and the reduced use of these units continued throughout the test period. This action conserved water that is essential to the operation of Duke Energy Carolinas' nuclear and fossil generating assets.

The current Federal Energy Regulatory Commission ("FERC") license for the Catawba-Wateree Hydroelectric Project was approved in 1958 and expires in August 2008. In connection with its petition for license renewal, Duke Energy Carolinas has negotiated a Comprehensive Relicensing Agreement ("CRA") among 70 parties, which was filed with FERC on August 28, 2006. Duke Energy Carolinas and the other parties to the CRA have voluntarily complied with the minimum flows and the low inflow protocol ("LIP") contained in the proposed license. The LIP was developed on the basis that all parties with interests in water quantity will share the responsibility to establish priorities and to conserve the limited water supply. The purpose of the LIP is to establish procedures for reductions in water use during periods of low inflow to the Catawba-Wateree Project. During the entire test period, the Company was operating under a voluntarily initiated Stage 1, Stage 2, or Stage 3 drought condition in the Catawba-Wateree basin in accordance with the proposed LIP. For the majority and upon the end of this test period, the Stage 3 drought condition was in effect for the Catawba-Wateree basin. Such action provides benefits to the Company in that the LIP requires that municipalities withdrawing water from the basin implement mandatory water conservation efforts.

The wastewater discharge permits governing the operation of Duke Energy Carolinas' coal-fired generation contain limits on the temperature of water discharged from the stations into the receiving water upon which these stations are located. During periods of low water flow and high ambient temperatures, the temperature of cooling water withdrawn and taken into these stations is elevated, requiring the stations, in some instances, to reduce operations to prevent heating the cooling water to levels that would violate permit limits. These conditions were most prevalent in August and September of 2007 when 4.6% and 2.3% of the coal fleet capacity, respectively, was declared unavailable in order to operate within thermal discharge limits. The coal units affected by these thermal constraints all were of the intermediate and peaking classification. The largest and most efficient combustion turbines were called upon more frequently during these time periods to serve the generation load demand.

Q. WHAT STEPS HAS THE COMPANY TAKEN TO MITIGATE THE IMPACTS OF THE DROUGHT AND ITS EFFECT ON FUEL COSTS?

A. As stated earlier, the Company has made efforts to preserve water in its reservoirs so that it may continue to operate its lower cost base load generation at full capacity. Specifically, through the CRA and the relationships that have developed from it, Duke Energy Carolinas' collaborative drought management efforts in the Catawba-Wateree basin are achieving water conservation results. The Company is a member of the Drought Management Advisory Group, an organization that includes owners of all large water intakes, state resource agencies, and the United States Geological Survey, and will continue to collaborate on contingency plans to achieve targeted water conservation goals. Other collaborative efforts are also in effect, such as the water conservation efforts for the Keowee-Toxaway basin, which occur on a more informal basis. Overall, the Company will continue to deploy strategies to maintain water storage in key reservoirs, implement generating unit modifications to mitigate drought-related risks, incorporate drought-related risks into power supply plans, monitor regional drought impacts in coordination with neighboring utilities, and generally work to achieve results with the same diligence that it has utilized in all conservation efforts to date.

In addition to the efforts described above, the Company purchased energy in 2007 to manage environmental constraints and to reduce output during off-peak periods in order to preserve reservoir levels. Due to the drought's significant power supply impacts on Duke Energy Carolinas and its customers, the Company entered into a one-year agreement for 2008 to purchase an additional 520 MWs of combined cycle capacity and energy to insure against potential shortages in the wholesale power market and corresponding high prices in the likely event that the Company's owned generation is not available due to exceptional drought conditions. Further, the Company has implemented, and is pursuing, capital projects to increase its ability to operate its generation units at reduced reservoir levels and stream flows. These projects include, but are not limited to, water bypass projects, portable cooling tower additions, and piping system modifications.

Although Duke Energy Carolinas currently does not have any conventional hydroelectric capacity out of service, the Company expects the reduced use of its hydroelectric generation to continue until rainfall further restores water flows and helps to maintain and/or build reservoir levels. The Company has continued to reduce the capability of the pumped storage hydroelectric generation by 40 MW due to low lake levels. Thermal limitations contained in environmental permits for the Company's fossil generation units are projected to be an issue during the warm weather months if water levels and flows continue to be affected by the drought situation.

Q. MR. ROEBEL, PLEASE DISCUSS SIGNIFICANT PLANNED OUTAGES OCCURRING AT DUKE ENERGY CAROLINAS FOSSIL AND HYDROELECTRIC FACILITIES DURING THE TEST PERIOD.

A. In general, planned maintenance outages for all fossil and larger hydroelectric units are scheduled for the spring and fall to maximize unit availability during periods of peak demand. Most of these units had at least one small planned outage during this test period to inspect and repair critical boiler and balance of plant equipment or for the final tie-in of new environmental control equipment. Ten of the thirty coal units had extended planned outages of three weeks or more. For five of these extended planned outages, the primary driver for the outage schedule was to install new environmental control equipment with the unit off-line. As a result of these planned environmental project outages during the test period, both units at Belews Creek now are operating with the Scrubber technology in place for reduced SO_2 emissions, the final two Selective Non-Catalytic Reduction ("SNCR") systems now are operating at Allen Unit 5 and Riverbend Unit 5 for reduced nitrogen oxide ("NO_x") emissions, and one additional burner upgrade project for Dan River Unit 1 has been completed to further reduce NO_x emissions. The remaining five significant planned outages on coal-fired units (Allen Unit 3, Allen Unit 4, Buck Unit 5, Cliffside Unit 1 and Marshall Unit 2) were required for regularly scheduled turbine and boiler maintenance work.

For the large combustion turbine fleet, two units at the Lincoln facility underwent regularly scheduled hot gas path inspection outages, and two units at the Mill Creek facility underwent regularly scheduled combustion inspection outages.

Q. PLEASE DISCUSS HOW THE COMPANY'S PROGRESS ON ENVIRONMENTAL CONTROLS AND COMPLIANCE PROJECTS IMPACTS THE AVAILABILITY OF THE FOSSIL FLEET.

A. As I discussed earlier, the Company continued to install pollution control equipment over the test period. This equipment is required to reduce NO_x and SO_2 emissions in accordance with federal, state and local requirements. Selective Catalytic Reduction ("SCR") or SNCR equipment is now installed and operational on eighteen coal-fired units. Burner replacements have also been installed on other peaking coal units for enhanced NO_x performance. Duke Energy Carolinas also made significant progress on the installations of Scrubber technology in support of SO_2 emission limits. The first four scrubbed units at Marshall were placed in service prior to the test period, and Scrubbers for the two Belews Creek units were place in service during the test period. The remaining Scrubber installations at Allen and Cliffside Unit 5 are in progress.

Duke Energy Carolinas minimizes the amount of scheduled outage time necessary for these environmental equipment additions when possible by performing multiple projects during a scheduled outage and performing as much construction work as possible while the units are online. However, these mandated environmental installation projects require significantly greater planned outage days as compared to that typically experienced for the fossil fleet. In addition to the outages necessary for installation of these environmental controls, having this environmental equipment in service impacts the day-to-day operation of the fossil fleet. The SCR and Scrubber equipment itself requires power which reduces the overall output of these facilities. Retrofitting existing units to support such equipment is also expected to result in balance of plant operational issues that the station personnel must monitor and address as they arise.

Q. PLEASE DISCUSS THE USE OF REAGENTS IN CONNECTION WITH THE OPERATION OF ENVIRONMENTAL EQUIPMENT ADDITIONS.

A. As discussed above, Duke Energy Carolinas is required to install and operate pollution control equipment on its coal units in order to meet various federal, state and local reduction requirements for NO_x and SO_2 emissions. The SCR technology is currently installed and operational on three coal units and being installed on the Marshall Unit 3 for the purpose of reducing NO_x emissions. The SNCR technology is currently installed and operational on 15 units for the purpose of reducing NO_x emissions. The Scrubber technology is currently installed and operational on six units for the purpose of reducing SO_2 emissions with additional installations planned. Each of these technologies requires the presence and consumption of a reagent in order for the chemical reaction to occur that eliminates the NO_x or SO_2 emissions. The SCR technology that the Company currently operates uses ammonia in the presence of a catalyst for NO_x removal, the SNCR technology injects urea into the boiler for NO_x removal, and the Scrubber technology that the Company has in service uses crushed limestone for SO_2 removal. Organic acid (often referred to as "DBA" or "dibasic acid") can also be used with the Scrubber technology for additional SO_2 removal.

The quantity of reagent consumed in these emission reduction processes varies depending on the generation output of the unit, the chemical constituents in the coal being burned and the level of emission reduction required. Station operators must monitor each of these parameters to ensure that the equipment is being operated in the most efficient and effective manner possible, optimizing emission reduction goals and the overall cost effectiveness of unit operations.

Q. HOW DOES THE COMPANY ENSURE THAT COSTS ASSOCIATED WITH THESE REAGENTS ARE PRUDENT AND MANAGED EFFECTIVELY?

A. The Company's objective in procurement of these environmental reagents is to provide the stations with the most effective total cost solution for operation of the pollution control equipment, understanding the technical capabilities of the equipment, assessing reagent needs over the long term, assessing the various reagent markets, and looking for leverage opportunities by combining reagent purchases with those associated with the Company's Midwest operations.

Technical and sourcing teams have been established to accomplish these objectives for the NO_x reagents in use, currently ammonia and urea. These teams have completed actions for the short-term, including the review and refinement of reagent transportation methods and consolidation of contracts, and have identified initiatives to consider for the long term. Witness Batson addresses the procurement of limestone used for SO_2 removal.

Q. WHAT COSTS FOR AMMONIA, UREA AND ORGANIC ACID ARE INCLUDED IN THE COMPANY'S PROPOSED FUEL FACTOR?

A. For the period of July 1, 2007 through May 31, 2008, Duke Energy Carolinas consumed \$4.5 million worth of ammonia in operating the SCR equipment at the Belews Creek and Cliffside stations and \$4.6 million worth of urea in operating the SNCR equipment at the Allen, Buck, Marshall and Riverbend stations. Organic Acid was used only in minute quantities in operating the Scrubbers at Marshall. Witness Batson will discuss limestone consumption in his testimony.

As additional environmental equipment is placed in service, these reagent costs are expected to increase. For the period of June 1, 2008 through September 30, 2008, Duke Energy Carolinas is currently projecting to consume approximately \$11.6 million worth of ammonia in operating the SCR equipment at the Belews Creek and Cliffside stations and approximately \$10.6 million worth of urea in operating the SNCR equipment at the Allen, Buck, Marshall and Riverbend Stations and the SCR equipment at Marshall once in service. Additionally, it is estimated that \$1.0 million worth of organic acid will be consumed in operating the Scrubber equipment at the Marshall, Belews Creek and Allen stations. In addition to the limestone consumption discussed by Witness Batson, the Company has included $23.2 million in estimated ammonia, urea and organic acid reagent cost in calculating the variable environmental component of its proposed fuel factor.

Q. MR. ROEBEL, DOES THAT CONCLUDE YOUR TESTIMONY?

A. Yes, it does.